

Amendments to the Claims:

The following listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (withdrawn): A multiple battery system comprising:

a battery housing having a common positive terminal and a common negative terminal each coupled to an electrical system;

a main battery having a main positive output and a main negative output;

at least one auxiliary battery having an auxiliary positive output and an auxiliary negative output; and

a main electrical circuit comprising a coupling of the common positive terminal with a switching device, the at least one switching device having at least two operating positions, a first operating position of the at least two operating positions coupling the common positive terminal to the main positive output of the main battery and to a one-way charging circuit that precedes and is coupled to the auxiliary positive output and a second operating position wherein the common positive terminal is coupled through the at least one switching device to a point in the main circuit beyond the one-way charging circuit that couples to the auxiliary positive output.

Claim 2 (withdrawn): The multiple battery system of claim 1, wherein the main battery is electrically isolated from the auxiliary battery in the second position of the at least one switching device.

Claim 3 (withdrawn): The multiple battery system of claim 1, the battery housing further comprising an at least one main battery compartment containing the main battery.

Claim 4 (withdrawn): The multiple battery system of claim 1, wherein the main battery is one of a six-volt, a twelve-volt, or a twenty-four volt battery.

Claim 5 (withdrawn): The multiple battery system of claim 1, wherein only the coupling of the positive output of the main battery and the positive output of the at least one auxiliary battery are switched by the switching device.

Claim 6 (withdrawn): The multiple battery system of claim 1, wherein the second operating position of the at least two operating positions isolates the main battery from the electrical system and introduces only the at least one auxiliary battery.

Claim 7 (withdrawn): The multiple battery system of claim 1, the battery housing further comprising an at least one auxiliary battery compartment containing the at least one auxiliary battery.

Claim 8 (withdrawn): The multiple battery system of claim 1, wherein the at least one auxiliary battery is one of a six-volt, twelve-volt, or twenty-four volt battery.

Claim 9 (withdrawn): The multiple battery system of claim 1, wherein the main battery is a twelve-volt battery further comprising six, two-volt cells and wherein the at least one auxiliary battery is a twelve-volt battery further comprising six two-volt cells.

Claim 10 (withdrawn): The multiple battery system of claim 1, wherein the battery housing further comprises a main battery compartment containing the main battery and an at least one auxiliary battery compartment containing the at least one auxiliary battery, the main battery compartment being located atop the at least one auxiliary battery compartment.

Claim 11 (withdrawn): The multiple battery system of claim 1, the battery housing further comprising at least one fill tube.

Claim 12 (withdrawn): The multiple battery system of claim 11, wherein the at least one fill tube comprises an at least one main battery fill tube.

Claim 13 (withdrawn): The multiple battery system of claim 12, wherein the main battery comprises at least one cell and the at least one main fill tube comprises a main fill tube for each cell of the main battery.

Claim 14 (withdrawn): The multiple battery system of claim 1, wherein the at least one fill tube comprises an at least one auxiliary battery fill tube.

Claim 15 (withdrawn): The multiple battery system of claim 14, wherein the auxiliary battery comprises at least one cell and the at least one auxiliary fill tube comprises an auxiliary fill tube for each cell of the auxiliary battery.

Claim 16 (withdrawn): The multiple battery system of claim 1, further comprising an at least one main fill tube and an at least one auxiliary fill tube, the at least one auxiliary fill tube passing through the main battery compartment.

Claim 17 (withdrawn): The multiple battery system of claim 1, wherein the one-way charging circuit comprises an at least one-way charging diode.

Claim 18 (withdrawn): The multiple battery system of claim 17, wherein the at least one-way charging diode further comprises an at least one silicon rectifier.

Claim 19 (withdrawn): The multiple battery system of claim 18, wherein the at least one silicon rectifier has between about a 25 and 95 amperage rating.

Claim 20 (withdrawn): The multiple battery system of claim 19, wherein the main battery is a 12-volt automobile battery and the at least one silicon rectifier has a 12-volt, 45 amp rating.

Claim 21 (withdrawn): The multiple battery system of claim 1, wherein the charging circuit further comprises an at least one high capacity diode and an at least one heat sink coupled to the at least one high capacity diode.

Claim 22 (withdrawn): The multiple battery system of claim 21, wherein the at least one high capacity diode has between about 25 and 95 amperage rating.

Claim 23 (withdrawn): The multiple battery system of claim 22, wherein the at least one high capacity diode has a 12-volt, 45 amp rating and the at least one heat sink coupled to the high capacity diode has a sufficient surface area to dissipate the heat generated by the 12-volt, 45 amp rated at least one high capacity diode.

Claim 24 (withdrawn): The multiple battery system of claim 1, further comprising a controller coupled to and switching the at least one switching device.

Claim 25 (withdrawn): The multiple battery system of claim 24, further comprising an at least one sensor in communication with the at least one controller.

Claim 26 (withdrawn): The multiple battery system of claim 25, wherein the at least one sensor further comprises an at least one main battery voltage sensor.

Claim 27 (withdrawn): The multiple battery system of claim 26, wherein the at least one sensor further comprises an at least one main battery cold cranking amperage sensor.

Claim 28 (withdrawn): The multiple battery system of claim 27, wherein the at least one sensor further comprises an at least one auxiliary battery voltage sensor.

Claim 29 (withdrawn): The multiple battery system of claim 28, further comprising an auxiliary battery cold cranking amperage sensor.

Claim 30 (withdrawn): The multiple battery system of claim 29, wherein the at least one sensor further comprises an at least one switch position sensor.

Claim 31 (withdrawn): The multiple battery system of claim 29, wherein the controller couples to and communicates with the position sensor to detect the position of the switching device and selectively engages the switching device based on the input of at least one of the at least one main battery voltage sensor, the at least one main battery cold cranking sensor, the at least one auxiliary battery voltage sensor, and the at least one auxiliary cold cranking amperage sensor.

Claim 32 (withdrawn): The multiple battery system of claim 1, further comprising an auxiliary battery discharge system.

Claim 33 (withdrawn): The multiple battery system of claim 32, wherein the auxiliary battery discharge system further comprises a controller with a timer.

Claim 34 (withdrawn): The multiple battery system of claim 33, wherein the timer signals the controller to periodically change the switch position so as to discharge the auxiliary battery in the second operating position of the at least two operating positions for short periods and then switches back to the first operating position of the at least two operating positions.

Claim 35 (withdrawn): The multiple battery system of claim 32, wherein the discharge system comprises a written instruction to manually switch the battery system to the second operating position for a brief period of time and then to manually switch the switching device to the first operating position.

Claim 36 (withdrawn): The multiple battery system of claim 32, wherein the controller switches the switching device to couple the common positive terminal to the auxiliary battery positive output if an input signal from an at least one sensor indicates that the main battery voltage or cold cranking amperage is below a trigger point.

Claims 37-62 (cancelled)

Claim 63 (withdrawn): An auxiliary battery attachment system comprising:

a main battery with an at least one main positive output and an at least one main negative output;

a circuitry housing having an at least one positive common terminal, an at least one negative common terminal, an at least one positive coupling and an at least one negative coupling, the at least one positive and negative couplings electrically coupling the at least one positive and at least one negative main battery outputs to the at least one positive and at least one negative common terminals which are in turn coupled to an electrical system; an at least one auxiliary battery having an auxiliary positive output and an auxiliary negative output, each output being electrically coupled to the at least one positive common terminal and at least one negative common terminal, respectively; and

a main electrical circuit comprising a coupling of the common positive terminal with an at least one switching device, the at least one switching device having at least two operating positions, a first operating position of the at least two operating positions coupling the common positive terminal through the at least one positive coupling to the main positive output of the main battery and to a one-way charging circuit that precedes and is coupled to the auxiliary positive output and a second operating position wherein the common positive terminal is coupled through the at least one switching device to a point in the main circuit beyond the one-way charging circuit that couples to the auxiliary positive output.

Claim 64 (withdrawn): The auxiliary battery attachment system of claim 63, wherein the circuitry housing is mounted atop the main battery.

Claim 65 (withdrawn): The auxiliary battery attachment system 63, wherein the circuitry housing is mounted on a side of the main battery.

Claim 66 (withdrawn): The multiple battery system of claim 63, wherein in the first operating position, the one-way charging circuit permits electrical energy from the electrical system to flow into both the main and auxiliary batteries, but prevents electrical energy from flowing out of the auxiliary battery.

Claim 67 (withdrawn): The auxiliary battery attachment system 63, wherein the second operating position of the at least two operating positions fully disconnects the main battery from the electrical system and introduces only the at least one auxiliary battery.

Claim 68 (withdrawn): The auxiliary battery attachment system 63, wherein the at least one positive and negative couplings are within the circuitry housing.

Claim 69 (withdrawn): The auxiliary battery attachment system 63, wherein the at least one auxiliary battery is one of a six-volt, twelve-volt, or twenty-four volt battery.

Claim 70 (withdrawn): The auxiliary battery attachment system of claim 63, wherein the circuitry housing contains the at least one auxiliary battery.

Claim 71 (withdrawn): The auxiliary battery attachment system of claim 63, wherein the one-way charging circuit comprises an at least one-way charging diode.

Claim 72 (withdrawn): The auxiliary battery attachment system of claim 71, wherein the at least one-way charging diode further comprises an at least one silicon rectifier.

Claim 73 (withdrawn): The auxiliary battery attachment system of claim 72, wherein the at least one silicon rectifier has between about a 25 and 95 amperage rating.

Claim 74 (withdrawn): The auxiliary battery attachment system of claim 72, wherein the main battery is a 12-volt automobile battery and the at least one silicon rectifier has a 12-volt, 45 amp rating.

Claim 75 (withdrawn): The auxiliary battery attachment system of claim 63, wherein the charging circuit further comprises an at least one high capacity diode and an at least one heat sink coupled to the at least one high capacity diode.

Claim 76 (withdrawn): The auxiliary battery attachment system of claim 75, wherein the at least one high capacity diode has between about 25 and 95 amperage rating.

Claim 77 (withdrawn): The auxiliary battery attachment system of claim 76, wherein the at least one high capacity diode has a 12-volt, 45 amp rating and the at least one heat sink coupled to the high capacity diode has a sufficient surface area to dissipate the heat generated by the 12-volt, 45 amp rated at least one diode.

Claim 78 (withdrawn): The auxiliary battery attachment system of claim 77, further comprising a controller coupled to and switching the switching device.

Claim 79 (withdrawn): The auxiliary battery attachment system of claim 78, further comprising at least one sensor in communication with the controller.

Claim 80 (withdrawn): The auxiliary battery attachment system of claim 79, wherein the at least one sensor in communication with the includes at least one switch position sensor to detect the position of the at least one switching device and at least one of a main battery voltage sensor, a main battery cold cranking amperage sensor, an auxiliary battery voltage sensor, and an auxiliary cold cranking amperage sensor, the switch device being actuated by the controller based on input from one of the at least one sensor.

Claim 81 (withdrawn): The auxiliary battery attachment system of claim 63, further comprising an auxiliary battery discharge system.

Claim 82 (withdrawn): The auxiliary battery attachment system of claim 63, wherein the discharge system further comprises a controller with a timer.

Claim 83 (withdrawn): The auxiliary battery attachment system of claim 82, wherein the timer signals the controller to periodically change the switch position so as to discharge the auxiliary

battery in the second operating position of the at least two operating positions for short periods and then switches back to the first operating position of the at least two operating positions.

Claim 84 (withdrawn): The auxiliary battery attachment system of claim 82, wherein the discharge system comprises a written instruction to manually switch the battery system to the second operating position for a brief period of time and then to manually switch the switching device to the first operating position.

Claim 85 (withdrawn): The auxiliary battery attachment system of claim 82, wherein the controller switches the switching device to couple the common positive terminal to the auxiliary battery positive output if an input signal from an at least one sensor indicates that the main battery voltage is below a trigger point.

Claim 86 (withdrawn): A method of detecting a discharge condition fault in an electrical system, comprising the method steps of: sensing an initial discharge condition within an electrical system of a vehicle or a piece of machinery; switching a battery having a main and auxiliary battery and a switching device with at least two operating positions from a main operating position wherein the main and auxiliary batteries are coupled in an electric circuit with a one way charging diode preceding the auxiliary battery, to an auxiliary operating position in which the auxiliary battery is coupled in series with the electrical system of the vehicle or the piece of machinery and the main battery is electrically isolated; utilizing the auxiliary battery in the auxiliary operational position to start the vehicle or piece of machinery; returning the switching device to the normal operating position and engaging the main battery in the normal operating position; and determining whether the vehicle or machinery is operational in the normal operating position, failure indicating a general operating fault in the electrical system.

Claim 87 (withdrawn): The method of claim 86, further comprising the method step of returning the switching device to the auxiliary position and engaging the auxiliary battery to supply the needed energy to operate the vehicle or machinery and seek repair of the electrical fault.

Claim 88 (new): An apparatus for reliably supplying electrical energy to an electrical system connected between a system positive terminal and a system negative terminal, the apparatus comprising:

a main battery having a main positive output and a main negative output, the main negative output being electrically connected to the system negative terminal;

at least one standby battery having at least one standby positive output and at least one standby negative output, the at least one standby negative output being electrically connected to the system negative terminal;

a one-way charging circuit electrically connected between the main positive output and the at least one standby positive output, the one-way charging circuit configured to facilitate charging of and prevent current flow from the at least one standby battery at all times during which the main battery is supplying electrical energy to the electrical system; and

a switching device operable in a plurality of independent operating positions to at least selectively electrically connect the system positive terminal to one of the main positive output and the at least one standby positive output, the switching device being operable in a first operating position to electrically connect the main positive output to the system positive terminal and electrically disconnect the system positive terminal from the at least one standby positive output, the switching device being further operable in a second operating position independent of the first operating position to electrically connect the at least one standby positive output to the system positive terminal and electrically disconnect the system positive terminal from the main positive output,

wherein, when the switching device is in the first operating position, the main battery is the sole source of electrical energy to the electrical system and wherein, when the switching device is in the second operating position, the at least one standby battery is the sole source of electrical energy to the electrical system, such that the main battery and the at least one standby battery never supply electrical energy to the electrical system simultaneously.

Claim 89 (new): The apparatus of claim 88, wherein the main battery is a six-volt, twelve-volt, or twenty-four volt battery.

Claim 90 (new): The apparatus of claim 88, wherein the at least one standby battery is a six-volt, twelve-volt, or twenty-four volt battery.

Claim 91 (new): The apparatus of claim 88, further comprising:

a battery housing that includes a main battery compartment and at least one standby battery compartment, the main battery compartment containing the main battery and the at least one standby battery compartment containing the at least one standby battery.

Claim 92 (new): The apparatus of claim 91, wherein the main battery compartment is located atop the at least one standby battery compartment.

Claim 93 (new): The apparatus of claim 91, wherein the battery housing comprises at least one fill tube.

Claim 94 (new): The apparatus of claim 91, wherein the battery housing has external dimensions characteristic of a conventional vehicle battery housing.

Claim 95 (new): The apparatus of claim 88, wherein the one-way charging circuit comprises a diode.

Claim 96 (new): The apparatus of claim 88, wherein the one-way charging circuit has an amperage rating between about 25 and 95 amps.

Claim 97 (new): The apparatus of claim 88, wherein the main battery is a 12-volt automobile battery and the one-way charging circuit has an amperage rating of 45 amps.

Claim 98 (new): The apparatus of claim 88, wherein the switching device is operable in a third operating position independent of the first operating position and the second operating position to electrically disconnect the system positive terminal from both the main positive output and the

at least one standby positive output, thereby preventing electrical energy from flowing out of either the at least one standby battery or the main battery to the electrical system.

Claim 99 (new): The apparatus of claim 88, further comprising:

a controller coupled to the main battery, the at least one standby battery, and the switching device, the controller operable to control operation of the switching device based on one or more operating parameters of the main battery and the at least one standby battery.

Claim 100 (new): The apparatus of claim 99, wherein the one or more operating parameters of the main battery and the at least one standby battery include a voltage of the main battery, a voltage of the at least one standby battery, temperature, vibration, current flow from the main battery and current flow from the at least one standby battery.

Claim 101 (new): The apparatus of claim 88, further comprising:

a discharge cycling system coupled to the switching device and operable to periodically discharge the at least one standby battery.

Claim 102 (new): The apparatus of claim 101, wherein the discharge cycling system comprises a timer operable to periodically cause the switching device to switch from the first operating position to the second operating position, remain in the second operating position for a period of time, and switch back to the first operating position after the period of time.

Claim 103 (new): The apparatus of claim 88, wherein the switching device is a three position switching device.

Claim 104 (new): An apparatus for reliably supplying electrical energy to an electrical system, the apparatus comprising:

- a main battery;
- at least one standby battery;
- a one-way charging circuit coupled between the main battery and the at least one standby battery, the one-way charging circuit being configured to facilitate charging of and prevent current flow from the at least one standby battery at all times during which the main battery is supplying electrical energy to the electrical system; and
- a switching device coupled to the main battery, the at least one standby battery and the electrical system, the switching device being operable in a first operating position to permit electrical energy to flow out of the main battery to the electrical system and prevent electrical energy from flowing out of the at least one standby battery to the electrical system, the switching device being further operable in a second operating position independent of the first operating position to permit electrical energy to flow out of the at least one standby battery to the electrical system and prevent electrical energy from flowing out of the main battery to the electrical system,

wherein, when the switching device is in the first operating position, the main battery is the sole source of electrical energy to the electrical system and wherein, when the switching device is in the second operating position, the at least one standby battery is the sole source of electrical energy to the electrical system, such that the main battery and the at least one standby battery never supply electrical energy to the electrical system simultaneously.

Claim 105 (new): A method for reliably providing electrical energy from a main battery or at least one standby battery to an electrical system that includes battery charging functionality, the method comprising:

- initially providing electrical energy to the electrical system solely from the main battery while preventing electrical energy from flowing out of the at least one standby battery to the electrical system;
- using the electrical system to automatically charge the at least one standby battery during operation of the main battery; and

subsequently providing electrical energy to the electrical system solely from the at least one standby battery while preventing electrical energy from flowing out of the main battery to the electrical system, such that the main battery and the at least one standby battery never supply electrical energy to the electrical system simultaneously.